



Moriah College Green Travel Plan

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Moriah College

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The Transport Planning Partnership

Moriah College

Green Travel Plan

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APPENDICES

A. TRAVEL ACCESS GUIDE

1 Introduction

1.1 Background

The Transport Planning Partnership (TPPP) has been appointed to prepare this Green Travel Plan (GTP) on behalf of Moriah College (the 'College') to manage travel demand at the existing site of Moriah College, Queens Park. Specifically, this GTP responds the Secretary's Environmental Assessment Requirements (SEARs) dated 15 July 2019 (SSD-10352) for the following item:

- *“details of travel demand management measures to minimise the impact on general traffic and bus operations, including details of a location-specific sustainable travel plan (Green Travel Plan and specific Workplace travel plan) and the provision of facilities to increase the non-car mode share for travel to and from the site.”*

In addition, this GTP has since been updated to incorporate the comments and matters identified in the preliminary assessment of Department of Planning, Industry and Development (DPIE) dated 05 February 2020. The comments include submissions received during the formal exhibition period from State and local government agencies, authorities and members of the public.

This GTP has been prepared to propose initiatives and measures that can be implemented to encourage green travel modes. This GTP is envisaged to primarily target staff, primary and secondary students.

1.2 Organisational Context

The College currently provides education services from early learning through Kindergarten to Year 12. At present, the College currently has 1,535 enrolled students and 286 staff (as of 2019). The approved student population cap of the entire College (including the early learning centre) is 1,680 students.

A summary of the existing and proposed site provisions at the College is provided in Table 1.1.

Table 1.1: Existing and Proposed Site Provisions

Group	Existing Population (Year 2019)	Approved Population	Proposed Future Population
Early Learning Centre Children	80	80	130
Primary School Students	595	1,600	752
High School Students	860		1,088
Total Students	1,535	1,680	1,970
Primary School and High School Staff	276	-	302
Early Learning Centre Staff	10		13
Total Staff	286		315

This GTP has been prepared to provide a package of measures aimed at promoting sustainable travel within the College, with an emphasis on reducing reliance on single occupancy car travel, particularly in cognisance of the reduced car parking provision as part of the future redevelopment of the site.

1.3 The Role of Travel Plans

The purpose of a green travel plan relating to an educational facility is to encapsulate a strategy for managing travel demand that embraces the principles of sustainable transport whilst recognising the unique context of travel planning at education facilities. In its simplest form, this GTP encourages travel to and from the College using transport modes that have low environmental impacts, for example active transport modes including walking, cycling, public transport, and encourages better management of car use.

Active transport presents a number of interrelated benefits including:

- improved health benefits
- reduced traffic congestion, noise and air pollution caused by cars
- greater social connections with communities
- cost savings to the economy and individual.

In order to ensure that the GTP meets its intended objectives, a review of 'best practice' guidelines such as the City of Sydney 'Guide to Travel Plans' and 'The Essential Guide to Travel Planning' prepared by the United Kingdom Department of Transport, has been undertaken.

From the above review, the key themes applicable to the GTP include:

- **Site audit and data collection:** A site audit has been undertaken in order to identify and document the existing issues and opportunities relevant to site and its accessibility particularly by non-car modes. Opportunities to improve amenity, incentivise non-car travel and remove barriers to use of sustainable transport modes are then dealt with under the Site-Specific Measures, detailed in Section 5.1.

- **Audit of Policies:** An audit of key policy documents has been undertaken to assist define the direction and purpose of the GTP, aligned with the key targets and objectives from a local and regional perspective.
- **Bicycle Parking and Car Parking Management:** This GTP provides a strategy for management of both bicycle parking and car parking moving forward, and how they interact with travel choices.
- **Local Alliances:** The development of relationships between the College and various stakeholders (such as Waverley Council and Transport for NSW) will assist the College in delivering improved transport options.

The College generates a large number of trips from various modes from staff, students and visitors. Managing that travel demand in favour of sustainable modes is challenging but would be critical particularly when considering the future redevelopment of the site.

1.4 Travel Plan Pyramid

The GTP will need to be tailored to the College to ensure appropriate measures are in place for the different users (e.g. students, staff, parents and visitors) to promote a modal shift away from car usage.

The key elements of the GTP are shown in the Travel Plan Pyramid in Figure 1.1.

Figure 1.1: Travel Plan Pyramid

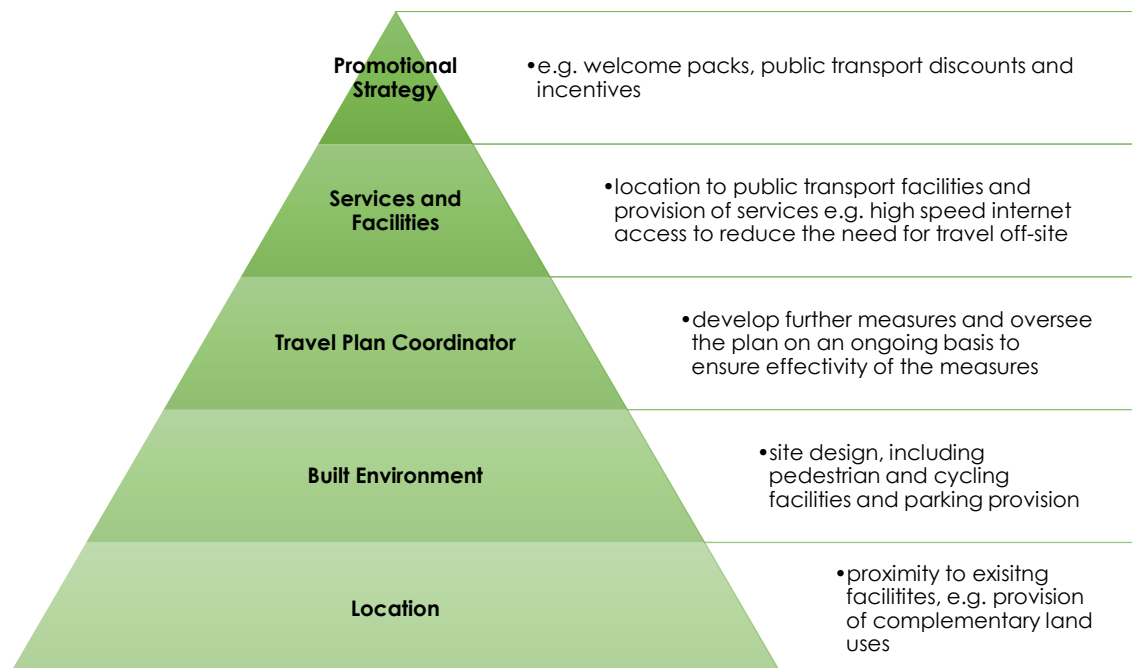


Figure 1.1 demonstrates that the key foundations to ensure the success of a GTP are:

- **Location** – i.e. proximity to existing public transport services and proximity to mixed land uses, e.g. shops and services, such that walking or cycling becomes the natural choice

- **Built Environment** – i.e. provision of high-quality pedestrian and cycling facilities, end-of-trip facilities and reduced car parking provision to encourage sustainable transport choices.

1.5 Drivers of the Travel Plan

There are a number of social, environmental and economic drivers for developing and implementing a GTP for developments as detailed below.

1.5.1 Car Parking

Car parks utilise valuable land resources and impact amenity. If the area continues to grow and there is no modal shift towards non-car transport modes, the car parking demand could increase significantly. As such, the provision of car parking must reflect the site's proximity to public transport to influence a modal shift to sustainable transport modes. Furthermore, the cost to provide parking is significant and therefore, there are strong economic imperatives to reduce car parking demand by incentivising non-car travel modes.

1.5.2 Environmental Impacts

The transport sector (road, rail, air and ship) is Australia's third largest source of greenhouse gas emissions (GHG), accounting for 18 per cent of emissions in Australia in 2015 (Climate Council of Australia, 2016). Mitigating this impact is a key driver of the GTP. Within Australia, the transport sector has the highest rate of growth of GHG emissions per year having risen by 51 per cent since 1990 with private vehicles responsible for almost half of transport emissions. In comparison, travel modes such as walking and cycling have the lowest emissions while public transportation has significantly lower impact than private vehicles.

1.5.3 Health Benefits

The use of sustainable transport modes can have wide-ranging health benefits due to a corresponding reduction in greenhouse gas emissions and increase in physical activity from walking and cycling. The shift from private cars to sustainable transport “can yield much greater immediate health “co-benefits” than improving fuel and vehicle efficiencies” (World Health Organisation, 2011). The potential benefits can include reduced respiratory diseases from better air quality, prevention of heart disease, some cancers, type 2 diabetes and some obesity-related risks.

1.5.4 Social Equity

Transport has a fundamental role in supporting social equity, that is the equitable distribution of services, amenities and opportunities. The provision of sustainable transport modes can provide a more affordable alternative to car use. As such, it offers better mobility for women,

children, young people, the aged, persons with disabilities and the poor, who have less access to private vehicles, thereby enhancing social equity.

1.5.5 Staff and Student Attraction

Ease of access has a significant impact on choices of work and study. Negative experiences and costs associated with travel can reduce the competitiveness of an education facility. High quality and efficient transport systems are key to attracting and retaining staff and students. Support for active transport modes is also highly desired by employers and employees because it improves health and productivity.

1.5.6 Education and Leadership

Educational facilities would have a great number of new persons coming through the organisation each year and as such, the organisation would have a unique opportunity to educate students into sustainable travel behaviours. These travel behaviours can help shape long-term travel behaviours that extend long after their completion at the organisation. Successful travel planning and education can reduce traffic impacts on the road network while potentially supporting a positive influence on local areas by raising public transport service demand and improving amenity.

1.6 Transport Objectives

The following objectives have been identified in order to achieve the vision of the GTP:

Objective 1: Facilitate a modal shift towards more sustainable transport modes

- Improve access, safety, amenity and convenience of sustainable transport modes for travel to/from and within the College.
- Incentivise sustainable transport modes and establish a culture of active and public transport use.
- Limit convenience of car access and parking within the College.

Objective 2: Make the College a great place to study, work and visit

- Improve access and mobility within the College to key attractions and public transport hubs and enhance the sense of place.
- Reduce the need to travel by co-locating complementary land uses and/or promoting flexible learning and teaching environments.

Objective 3: Minimise the impact of travel on the built form of the College

- Prioritise road space allocation and priority decisions towards more sustainable transport modes (e.g. walking and cycling).

- Facilitate more efficient use of existing assets, such as parking management/policies and guidance.

2 Existing Transport Policy Context

The review of existing relevant policy clearly demonstrates a number of themes that should inform the approach to ongoing management of transport demand, and investment in the transport network. These themes include:

- provision of high quality local transport infrastructure and improved bike paths and networks and improving accessibility and connectivity
- address car parking issues in key locations, including residential and business districts and encouraging active transport
- create connected, liveable communities where people can walk, cycle and use public transport to promote healthier, active communities.

A summary of the existing policy framework documents is provided in Table 2.1.

Table 2.1: Summary of Policy Framework

Policy/Strategy	Key Aims/Objectives/Goals
Waverley Council	
Waverley Community Strategic Plan 2018-2029	<p>The Waverley Community Strategic Plan sets out Council's provides an integrated planning and report framework in order to identify the community's main priorities and aspirations for the future.</p> <ul style="list-style-type: none"> ▪ With regard to transport and parking, the Strategic Plan sets the following objectives: ▪ Enable people to walk and cycle easily around the local area ▪ Improve accessibility to public transport, and ride sharing ▪ Reduce the need to own and travel by private motor vehicle.
Waverley's People, Movement and Places (2017)	<p>This strategic report sets out a number of key recommendations to Council in order to improve the full range of transport options for the community.</p> <p>The report sets out a range of short, medium and long-term actions to be undertaken between 2017 and 2030, including priority bus routes along key roads and cycling superhighways between key destinations. Among several benefits, it is hoped that the plan will help to establish safe routes that enable walking and cycling to school.</p>
NSW State Government	
New South Wales Long Term Transport Masterplan (NSW State Government, 2012)	<p>The NSW Long Term Transport Masterplan guide the NSW Government's transport funding priorities over the next 20 years. As part of this Plan, short- and medium-term actions will focus on a more efficient and reliable bus network to be better integrated with the wider public transport system.</p>
Future Transport Strategy 2056	<p>The Strategy aims to increase the mode share of public transport services and reduce the use of single occupant vehicles. The proposal will look to reduce private vehicle travel and aligning with the objectives of the Strategy.</p>
Greater Sydney Region Plan: A Metropolis of Three Cities – Connecting People	<p>The Greater Sydney Region Plan aims to deliver a 30-minute city where jobs, services and quality public transport spaces in easy reach of people's home. The site is well located to contribute towards creating a 30-minute city. The close proximity of the site to public transport facilities, as well as residential areas, means that students and staff can access easily access the site via public transport modes or walking. The site thus aligns with the objects of the Plan in creating jobs near public transport, including education precincts, to contribute towards a 30-minute city.</p>

Policy/Strategy	Key Aims/Objectives/Goals
Sydney's Cycling Future, Cycling for Everyday Transport (NSW State Government, 2013)	<p>Sydney's Cycling Future has targeted the 70% of residents in NSW who have indicated that they would cycle if it were safer to do so. Based on this, improving cycling infrastructure is a key focus of the strategy.</p> <p>The Three Pillars of Sydney's Cycling Future include:</p> <ul style="list-style-type: none"> investing in separated cycleways providing connected bicycle networks to major centres and transport interchanges promoting better use of our existing network; and, engaging with our partners across government, councils, developers and bicycle users.

2.1 Summary of Existing Transport Context

2.1.1 Public Transport Facilities

The site is generally serviced by bus services operated by Sydney Buses.

Bus route 357 travels along Queens Park Road and York Road within the immediate vicinity of the site and provides connectivity between Mascot and Bondi Junction via Kingsford and Randwick. There are a number of bus stops servicing bus route 357 along the north boundary of the site along Queens Park Road, generally operating every 15 minutes during peak periods and every 30 minutes during off-peak periods.

In addition, several bus stops are present along Clovelly Road with the closest bus stop located about 650m or eight-minute walk from the College. This stop is served by bus routes 338, 339, X39 and X40 which provide connectivity between Clovelly and Sydney CBD.

The College currently has arrangements with the State Transit Authority for special school bus services to deliver and pick up students in the morning and afternoon. In addition to this, the College provides shuttle bus services between the Bondi Junction/Maroubra area and the site. This shuttle bus services (Moriah Shuttle Bus, MSB) supplements the regular bus services each school day. Students can be collected from any bus stop along the designated route.

A summary of the existing bus services and their associated frequencies within the immediate vicinity of the site is provided in Table 2.2.

Table 2.2: Existing Bus Services and Associated Frequencies

Route Number	Description	Bus Stop Location	Frequency
357	Mascot to Bondi Junction via Kingsford	Queens Park Road (Gate 2), Queens Park	15 minutes (peak) 30 minutes (off-peak)
699E	Watsons Bay to Moriah College Queens Park	Queens Park Road (Gate 2), Queens Park	1 service (AM)
700E	Moriah College Queens Park to Watsons Bay	Baronga Avenue	1 service (PM)
701E	Moriah College Queens Park to Watsons Bay	Baronga Avenue	1 service (PM)
702E	Moriah College Queens Park to Dover & New South Head Roads	Baronga Avenue	3 services (PM)
703E	Moriah College Queens Park to Bondi Junction	Baronga Avenue	2 services (PM)
704E	Moriah College Queens Park to Maroubra Beach	Baronga Avenue	2 services (PM)
705E	Moriah College Queens Park to Dover Heights	Baronga Avenue	1 service (AM) 3 services (PM)
706E	Moriah College Queens Park to South Head Cemetery	Baronga Avenue	2 services (AM) 4 services (PM)
MSB (pick-up)	Moriah College to Bondi Junction	Baronga Avenue	1 service (PM)
MSB (drop-off)	Maroubra Beach to Moriah College	Queens Park Road (Gate 2), Queens Park	1 service (AM)
338	Clovelly to Central Railway Square	Clovelly Road	10 minutes (peak) 30 minutes (off-peak)
339	Clovelly to City Gresham Street	Clovelly Road	15 minutes (peak) 30 minutes (off-peak)
X39	Clovelly to City Martin Place (Express Service)	Clovelly Road	10 minutes (one direction per peak period only)
X40	Clovelly to City Museum (Express Service)	Clovelly Road	2-6 minutes (one direction per peak period only)

Figure 2.1 presents a map of the key existing bus stops and services within the immediate vicinity of the site. This map also indicates additional bus services located 500 to 1,000m from the site.



In addition to this, train services are available at Bondi Junction Station located 1.2km north of the site. The T4 Eastern Suburbs and Illawarra Line operates from this station with connections to the CBD and further south to Sutherland Shire. Services are generally provided approximately every 3-6 minutes during the morning and evening peak periods.

The existing rail network map is displayed in Figure 2.2.

Figure 2.2: Existing Rail Network Map



Source: TfNSW Sydney Trains Network Map (accessed online on 30/09/19)

Bus occupancy data has been obtained from Transport for NSW collected on 11 August 2016 to understand existing bus capacities within the immediate vicinity of the site (i.e. along Queens Park Road). It is noted that there is no other recent data available.

The bus patronage surveys have been derived from the following three main sources:

- PTIPS – Public Transport Information and Prioritisation System
- Opal
- Bus Fleet Capacity

The bus patronage surveys provide the following bus capacity classifications:

- **MANY_SEATS_AVAILABLE**
 - If occupancy on the bus is less than 50% of the seating capacity (e.g. less than or equal 22 bus patrons)
- **FEW_SEATS_AVAILABLE**
 - If occupancy on the bus is more than 50% of the seating capacity (e.g. more than 22 bus patrons)

▪ STANDING_ROOM_ONLY

- If occupancy on the bus is more than the seating capacity of the bus (e.g. more than 45 bus patrons)

Based on the bus occupancy data, existing bus loads within the immediate vicinity of the site currently operate well below capacity, generally with many seats available, in both directions along Queens Park Road. As such, the existing bus facilities within the immediate vicinity of the site currently operate within capacity, with spare capacity for any additional bus trips generated by the College.

2.1.2 Existing Pedestrian Infrastructure

Well established pedestrian facilities are provided within the immediate vicinity of the site. Sealed pedestrian footpaths are provided along the site frontage, with dedicated pedestrian facilities provided along York Road, Queens Park Road and Baronga Avenue in the form of pedestrian refuges or pedestrian (zebra) crossings. At present, these pedestrian facilities are heavily used during school peak drop off and pick up times.

The existing pedestrian access gates and pedestrian facilities surrounding the site are shown in Figure 2.3.

Figure 2.3: Existing Pedestrian Facilities



Source: nearmap Australia

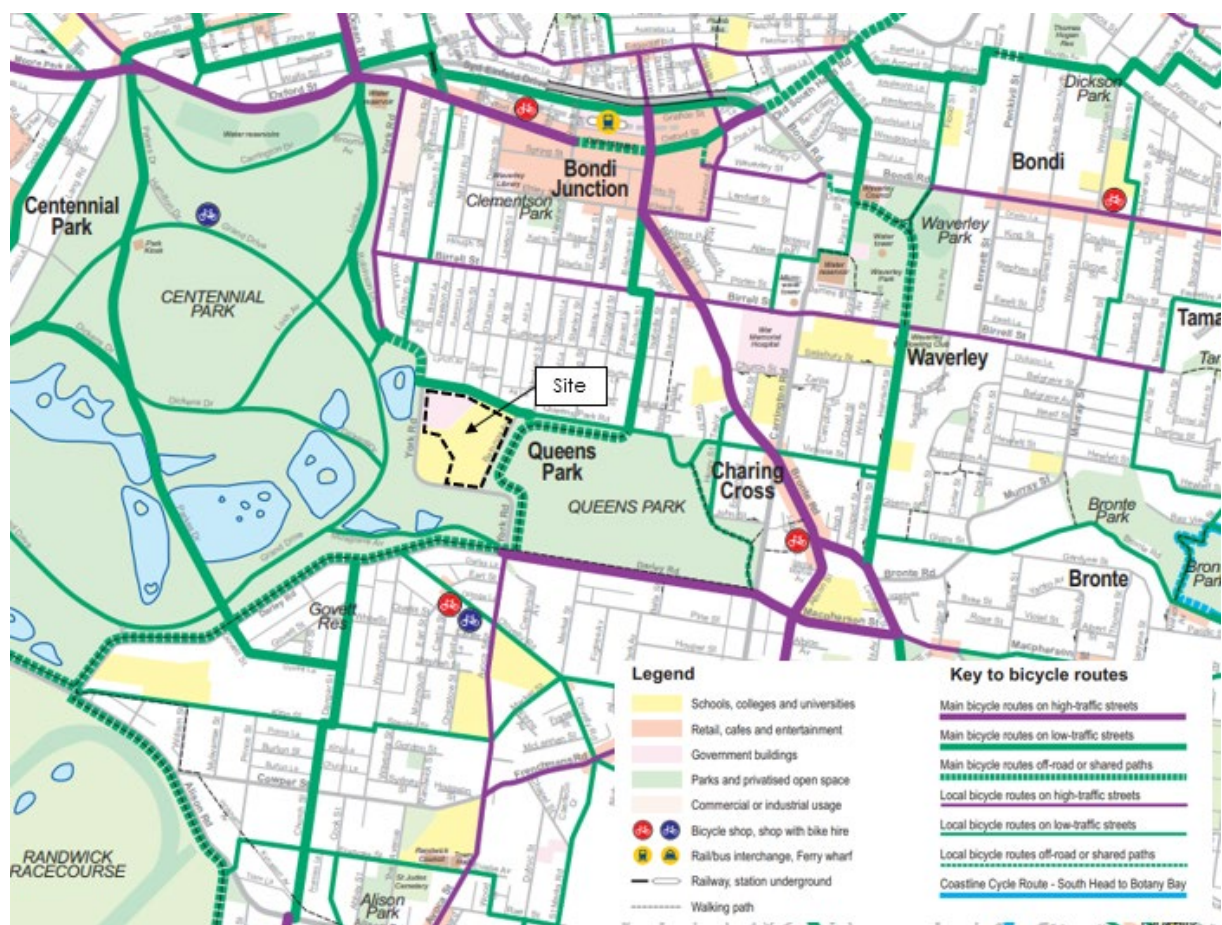
2.1.3 Existing Cycling Infrastructure

A good cycle network is currently provided within the immediate vicinity of the site. A dedicated on-road cycle path is currently provided on the north side of Queens Park Road, which provides good connectivity to the wider cycle network in the area.

Off-road shared paths are also present along Darley Road (east of York Road) and through Queens Park (between Darley Road and Queens Park Road).

The existing cycle network is shown in Figure 2.4.

Figure 2.4: Cycle Paths within the Vicinity of the Site



Source: Extract of the Waverley Bike Plan, Waverley Council

It is noted that a new pedestrian and cycleway along Darley Road, between York Road and Carrington Road, is set to commence construction in 2020. The new cycleway will connect to the existing shared path on Queens Park.

The proposed route of the cycleway is shown in Figure 2.5.

Figure 2.5: Proposed Darley Road Cycleway Route



Source: Waverley Council

2.1.4 Summary of Existing Car Share Facilities

Car share schemes are a flexible, cost effective alternative to car ownership and is a convenient and reliable way for staff or students to use a car when they need one. GoGet is a car share company operated in Australia, with numerous vehicles positioned within the Queens Park area.

Car share is a concept by which members join a car ownership club, choose a rate plan and pay an annual fee. The fees cover fuel, insurance, maintenance and cleaning. The vehicles are mostly sedans, but also include SUVs and station wagons. Each vehicle has a home location, referred to as a “pod”, either in a parking lot or on a street, typically in a highly-populated urban neighbourhood. Members reserve a car by web or telephone and use a key card to access the vehicle.

Notably, the City of Sydney Council has reported that “a single car share vehicle can replace up to 12 private vehicles that would otherwise compete for local parking”. As such, the provision of car sharing facilities or the promotion of using existing car sharing facilities in the vicinity should be able to reduce both the parking demand for the site and the traffic generated by it.

Figure 2.6 shows the location of the existing GoGet vehicles within an 800m radius catchment of the site.

Figure 2.6: Location of Existing GoGet Vehicles



Source: GoGet Australia

GoGet allows those teachers who bring their car to school as they may need it in the day, the opportunity to come by non-car modes but use GoGet to do their midday trip.

3 Existing Travel Patterns and Modes Splits

An online questionnaire was distributed to school staff and students via email in June 2019 to determine their travel mode choice and behaviour. The key objective of the data collection was to understand travel behaviour of students and staff to the College.

The ratio of completed surveys in relation to the student and staff population is shown in Table 3.1. The sample size obtained is considered adequate for this study.

Table 3.1: Survey Response Rates

Group	Total Number of Students/ Staff	Total Number of Surveys Completed	Ratio of Completion
Primary Students	595	512	86%
Secondary Students	860	496	58%
Staff	286	75	26%

A summary of existing staff and student travel modes obtained from the survey results is provided in Table 3.2.

Table 3.2: Summary of Existing Staff and Student Travel Modes

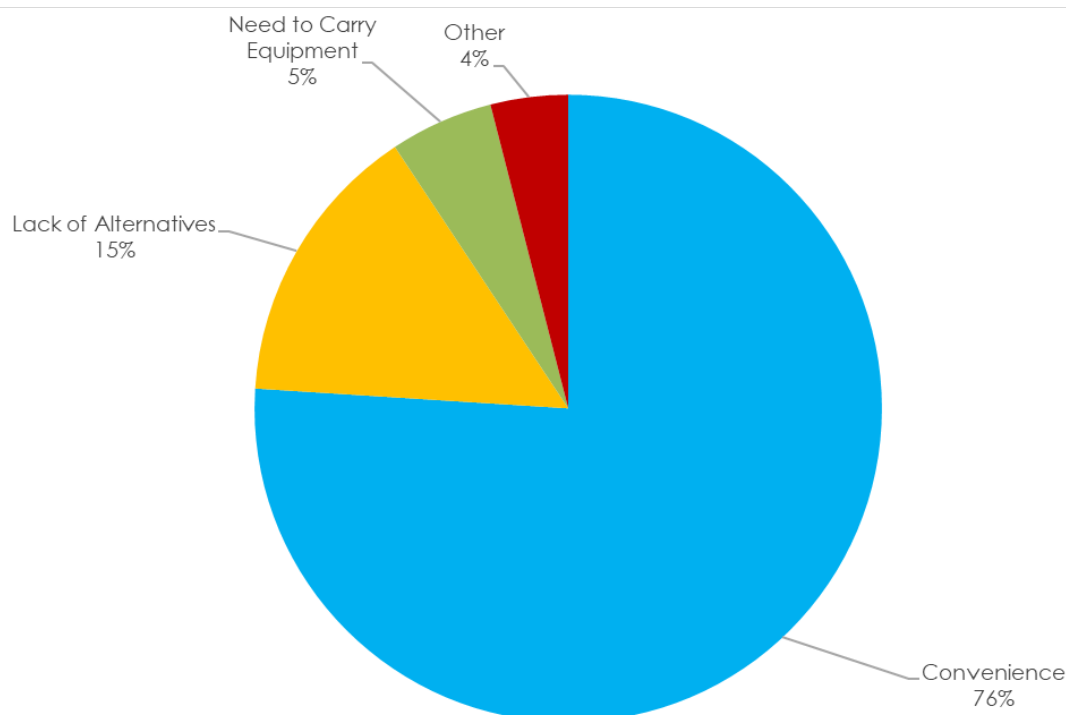
Mode	Staff	Primary Students		Secondary Students	
		Arrival	Departure	Arrival	Departure
Car Driver (no passengers)	71%	-	-	6%	6%
Car Driver (with passenger)	22%	-	-	0%	0%
Dropped Off (only passenger)	1%	22%	16%	19%	10%
Dropped Off (with other passengers)	1%	64%	41%	42%	19%
Walk	1%	2%	1%	1%	2%
Public Bus	3%	1%	3%	1%	2%
School Bus	0%	11%	39%	31%	61%
Train	1%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%

The results indicate a high dependency on car usage for staff and students (more so primary students), despite the site's proximity to bus services. It is also noted that more students chose to use the school bus in the afternoon compared to the morning period, which may be

attributed to more frequent buses during the school afternoon period compared to the morning, as shown in Table 2.2.

A summary of the main reasons why staff chose to drive to the site is provided in Figure 3.1.

Figure 3.1: Reasons for Travel Choices



Further to this, staff travelling to the site using private vehicles were also asked where they would usually park their car as part of the survey questionnaire. Based on this, 75 per cent of staff responded that they would park within the College car park, with the remaining 25 per cent of responses parking on-street in nearby streets.

This data suggests that further management of on-site car parking within the College (e.g. restricting/limiting access to car parking) could most likely be one of the key drivers to discourage car travel and generate a modal shift away from car trips to/from the College.

Other key findings from the survey questionnaire are as follows:

- There is a moderate uptake of carpooling to/from the site – with 22 per cent of staff driving to the College with another passenger and 41 to 64 per cent of students travelling with another passenger.
- The top four locations which staff travel from to the College are as follows:
 - Bondi
 - Dover Heights
 - Maroubra

- Rose Bay
- The top four locations which students travel from to the College are as follows:
 - Dover Heights
 - Vaucluse
 - Bellevue Hill
 - Rose Bay
- In order to encourage sustainable travel, staff would like to see more reliable and frequent buses and safe crossings near the school. Staff may consider using a dedicated staff bus to travel to the College if available.
- In order to encourage sustainable travel, students would like to see less crowded buses and more reliable and frequent buses
- It was found that 61% of secondary students and 32% of staff already or are prepared to carpool, while 39% of students and 68% of staff are not willing.
- Students and staff would like the following options to encourage carpooling:
 - Know the driver personally
 - Help finding people to car pool with
- 64% of secondary students and 42% of staff who currently travel by car / drive to the College would consider trying an alternative form of transport if made available and attractive.

Taking the above into consideration, TTPP notes the following salient points from the survey:

- Reviewing the current car parking allocation policy would be critical in order to remove the convenience of driving to the College to ensure the success of this GTP
- Increasing the use of carpooling may be challenging as staff and students generally come from various locations within Sydney – however staff and students are willing to carpool if such facilities were made readily available. This means increased education and promotion of carpooling would need to be carried out to incentivise carpooling to reduce single vehicle occupancy trips.
- Increasing the frequency of school bus services, particularly during the morning period, to provide good, reliable dedicated school bus services to/from the Campus. This however would need to be discussed with TfNSW.
- Providing safe, dedicated and better lit streets for walking and cycling would need to be considered within the College and on surrounding streets which connect to key attractions and destinations (such as Bondi Station) to generate a modal shift towards walking, cycling and public transport use
- Providing discounted public transport fares or more reliable, frequent school bus services (including a dedicated staff bus) will help to incentivise public transport use to the site and most likely generate a modal shift away from car-use.

The findings of this survey questionnaire have been used as a basis to develop the site-specific measures to encourage a modal shift away from private vehicles. This is further detailed in Section 5.

4 Mode Share Targets

The aim of the GTP is to encourage modal shift away from private vehicles by implementing measures that influence the travel patterns of staff and students. To ensure that the GTP is having the desired effect, the implementation of the GTP would be regularly monitored. The success of the GTP is measured by setting modal share targets and identifying the measures and actions that have the greatest impact.

The results of the existing staff and student modal splits indicate that car mode share (including drop offs) is generally as follows:

- Staff: 95 per cent
- primary school students: 86 per cent
- secondary school students: 67 per cent

It is noted that a modal shift between 3-5 per cent is typically considered to be a significant achievement (based on knowledge of local and international GTPs, and as stated by experts in Land Environment Court proceedings).

4.1 Proposed Mode Share Targets

On this basis, a summary of the existing and projected modal splits for each user type is provided in Table 4.1. In our view, these proposed modal split targets are considered realistic and a significant achievement based on our previous experience at similar developments, subject to the implementation of green travel strategies and initiatives.

Table 4.1: Existing and Projected Modal Splits

Main method of Travel	Staff		Primary Students*		Secondary Students*	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Car Driver (no passengers)	71%	60%	-		6%	2%
Car Driver (with passenger)	22%	23%	-		0%	3%
Dropped Off (only passenger)	1%	1%	22%	10%	19%	8%
Dropped Off (with other passengers)	1%	1%	64%	66%	42%	44%
Walk	1%	3%	2%	5%	1%	3%
Cycling	0%	2%	0%	2%	0%	2%
Train / Bus	4%	10%	12%	17%	32%	38%
Total	100%	100%	100%	100%	100%	100%

*These mode splits represent the arrival trips (AM) which have higher private car use than departure trips (PM)

The above represents a modal shift of some 10 per cent from car travel based on existing travel modes to/from the College. In addition to this, an increased uptake in carpooling should also be targeted in order to reduce single occupancy trips to/from the College.

A 2% increase in bicycle use is anticipated which is considered achievable as an effect of increased bicycle parking and end-of-trip facilities in College, as well as the future extension of cycleway along Darley Road as discussed in Section 2.1.3.

4.2 Proposed Mode Trip Generation

Table 4.2 summarises the anticipated net additional site traffic generation for each mode associated with the proposed College redevelopment under the existing mode splits (assuming no mode shifts) and proposed mode share targets (as outlined in Table 4.1). These additional figures are based upon the net additions from the existing approved school cap of 1,600 students.

Table 4.2: Estimated Student Trips for Each Mode (Ultimate Development Scenario)

Main method of Travel	Staff (+29)		Primary Students (+98)*		Secondary Students (+142)*	
	Existing Mode Splits	Mode Share Targets	Existing Mode Splits	Mode Share Targets	Existing Mode Splits	Mode Share Targets
Car Driver (no passengers)	21	17	-	0	9	3
Car Driver (with passenger)	6	7	-	0	0	4
Dropped Off (only passenger)	0	0	21	10	27	12
Dropped Off (with other passengers)	0	0	63	65	60	62
Walk	1	1	2	5	1	4
Cycling	0	1	0	2	0	3
Train / Bus	1	3	12	16	45	54
Total	29	29	98	98	142	142

*These mode splits represent the arrival trips (AM) which have higher private car use than departure trips (PM)

As indicated previously, the above modal split targets, in our view, are considered realistic and a significant achievement.

Based on the Traffic Impact Assessment report, the additional vehicle trip generation of the proposed scheme could decrease from 196vph to 59vph during the school AM peak and from 108vph to 22vph during school PM peak period as a result of the modal shift.

Table 4.3: Additional Peak Hour School Traffic Generation

	Approved School Capacity		Ultimate Development (no modal shift)		Ultimate Development (with modal shift)	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Traffic Generation (two way)	1,171	754	1,367 (+196)	862 (+108)	1,230 (+59)	776 (+22)

It is however noted that the ultimate goal of no net peak hour traffic increase on the road network compared with existing conditions will be targeted as part of this GTP. However, this would need to be a long-term goal for the school with extensive consultation with parents/caretakers, students and relevant authorities, including TfNSW (State Transit Authority) as such mode changes cannot be achieved overnight.

4.3 Case Study – Brisbane Active School Travel Programme

In 2004, Brisbane City Council implemented an Active School Travel (AST) programme at various schools to implement a number of initiatives to reduce the number of car trips made to and from Brisbane Schools.

Based on this programme, a summary of the key successes between 2008 and 2009 are as follows:

- 24.8 per cent decrease in car trips
- 19.1 per cent increase in students walking to the school
- 3.1 per cent increase in students cycling to school
- 2.5 increase in students carpooling with other families.

The key initiatives implemented include:

- **Walking Wheeling Wednesday** – a weekly campaign to encourage students to actively travel to school every Wednesday. This enabled a 'spill over' effect where students chose to actively travel to school for the whole week.
- **Park and Stride** – encourage students who have no alternative but to be driven to school to walk part of the way. A site was selected within a 5-10 minutes walking distance from the school and parents were encouraged to drop their children off there. This assisted to alleviate congestion experienced around the school gates.
- **Walking School Bus** – group of children walking to and/or from school with trained and approved Walk Leaders from the school community. This walking route include key bus stop to pick up and drop off children along the route as required.
- **Car Pooling** – encourage families to reduce the number of car trips from one family to provide some time and cost saving benefits by not having to do the 'school run' every day.
- **RACQ 'Streets Ahead; Road Safety Program'** – RACQ officers would visit schools to teach students how to be safe pedestrians and passengers. This presentation is interactive and engaging to encourage children to practice correct road safety behaviours, making it easier for them to learn how to be safe road users in real-life situations.
- **Public Transport Orientation** – this is an activity to education students how to use buses safely and how to behave safely at bus stops. This motivated some parents to allow their children to use public transport to school.
- **Bike Skills Training** – offered to students to improve their cycling competency, cycling confidence, safely cross the road, understand road rules and demonstrate to their parents they have attained sufficient skills to allow them to cycle to/from the school.
- **Bike Cage Construction** – provision of secure bike storage areas to alleviate student's and parent's fear or bicycle theft and/or vandalism.

- **Active Travel Maps** – specific active travel maps for each school to detail public transport services in the area, cycle and walking routes.
- **Road Star and Assembly Presentations** – a mascot who appears at launch events and school assemblies to promote active travel.
- **Adopt a Cop** – an initiative to pair a school up with their own police officer. This was found to provide reassurance to parents to allow their child to actively travel.
- **Active School Travel (AST) E-News** – a monthly newsletter to detail best practice models for initiatives and publishes the Walking Wheeling Wednesday statistics allowing schools to compare results and achievements.
- **Legacy Program** – provide schools with an additional two years of support in further developing and maintaining their travel plan.

A comprehensive evaluation was undertaken at the end of each year which highlights both successes and areas for improvement.

The above successful initiatives have been considered as part of this GTP.

5 Methods of Encouraging Modal Shift

To achieve the objectives of the GTP, measures will be put in place to influence the travel patterns to/from the site, with a view to encouraging modal shift away from cars.

5.1 Site-Specific Measures

It is recommended that the College implement the following on-site measures to encourage more sustainable travel use as outlined in Table 5.1.

Table 5.1: Site Specific Measures

Item	Description of Measure
1. Reduction of on-site car parking provision	Reducing or limiting on-site car parking provision and introducing strict car parking policies to manage car parking allocation with the site. It is recommended that the number of staff allocated parking spaces be reduced to remove the "convenience" away from car travel, which was identified as one of the main reasons for driving to the site.
2. Designated carpool only spaces in centrally managed car parks	It is recommended that designated carpool only parking spaces be provided within the site to encourage carpooling within the College. In order to use the designated carpool only spaces, a pre-booking system will be required. Security will be required to patrol these spaces to ensure appropriate use and compliance with relevant car park policies.
3. Bicycle Parking	It is recommended that additional secure bicycle parking facilities within the College, particularly near buildings be provided. Notably, new bicycle parking for teachers and students are proposed on the site as part of the proposed development of the site. Overall, a total of 160 bicycle parking spaces will be provided. In addition to this, end of trip facilities are already present on-site and will be enhanced as part of the proposal. A total of 500 lockers will also be delivered. This will encourage staff and students to cycle to the College. All existing bicycle locker and parking locations will need to be posted on public transport noticeboards and/or the College website to ensure staff, students and visitors are aware of the existing cycling facilities.
4. Walking Groups / Walking School Bus	<p>Staff employed at the College will be encouraged to walk by implementing a '10,000 steps per day initiative'. This involves providing staff with trackers that measure the number of steps they have walked. Staff members who have achieved the 10,000-step goal over a set period could be rewarded with a free gym membership or similar.</p> <p>Similar program is also recommended for students where students who achieved 10,000 steps in three consecutive days for example be rewarded with a discount couple at the canteen within the College.</p> <p>In addition, a more comfortable walking experience must be provided within the College as part of the redevelopment of the College, which will need to include an improved internal walking network.</p> <p>A trained and approved Walk Leader from the school community should be employed to walk a group of children to and/or from school. This walking route should include key bus stop to pick up and drop off children along the route as required.</p>
5. Bicycle User Groups	A cycling group would need to be established to familiarise the nearby bicycle routes and allow people to enjoy cycling with the company of others. This will also teach beginner cyclists the necessary skills required whilst cycling on-road. It will be necessary that a staff member be appointed to oversee and organise all bicycle events and communication regularly to promote cycling.

Item	Description of Measure
6. Public Transport Noticeboards	Public transport noticeboards should be provided at key locations and on the College's website to make staff, students and visitors more aware of the alternative transport options available. The format of the noticeboards will be based upon the travel access guide (see Appendix A).
7. Provision of showers, changing rooms and lockers	<p>End of trip facilities such as lockers and shower facilities to be provided to staff and students to encourage more staff and students to walk and cycle to the College. A total of 390 lockers will be included in Stage 1 development and an additional 110 lockers in Stage 2.</p> <p>The locations of the end-of-trip facilities will need to be included as part of the travel access guide posted at key locations on noticeboards, distributed via email regularly etc. This will enable staff and students to store their teaching material/resources in a safe and secure location.</p>
8. Public Transport Incentives/Discounts	Posters detailing eligibility for Opal Card concessions, bus services and other public transport information will be placed on noticeboards within the College and emailed to students. It is recommended that the College provide public transport fare subsidy to staff to encourage staff to use public transport more. Alternatively, this could be provided as a fringe tax benefit.
9. Interest free loan scheme for travel by bus, rail and bicycle	Depending on the effectiveness of the other "soft-measures", it may be necessary that staff be provided with pre-loaded Opal cards during their staff induction so that travel patterns can be influenced from Day 1. Furthermore, the College should investigate interest free loan schemes for staff and students for travel by bus, rail and bicycle (e.g. purchasing bicycles for staff and/or a \$50 pre-loaded opal card under an interest free loan scheme).
10. Car Share Vehicle	It is recommended that existing car sharing facilities be advocated to all staff and visitors. The initiative is predominately aimed at staff members who drive to the College so that they are able to run errands during the day using their car.
11. Online car sharing forum	A carpooling forum will be developed on the College staff and student portal to encourage students and staff to travel in groups. The forum will provide a platform for people travelling on the same route to site to find each other and form groups. Existence of the forum will be advertised at information points/ noticeboards within the College, social media and/or on the College Transport Access Guide (TAG).
12. A targeted approach to stimulate carpooling amongst staff	It will be necessary to develop a targeted approach to stimulate carpooling amongst staff. Promotion of the carpooling forums would need to be carried out as part of any staff induction and regular reports distributed to all staff members. In addition to this, social events will go hand in hand with this approach to promote social interaction between the staff to reduce social barriers which may deter staff from carpooling with other staff members.
13. Provide well-lit and safe pedestrian and cyclist facilities within the College	<p>It is recommended for all internal pedestrian and cycle facilities within the College be reviewed and upgraded with better lighting and with more security patrol to encourage more staff and students to walk/cycle to the site.</p> <p>In addition, it is recommended for a liaison officer to be appointed to lobby Council and other government agencies to improve existing and/or provide more pedestrian and cyclist facilities on all approaching routes and pedestrian paths to and from the site.</p>
14. Road Safety Awareness presentations	It is recommended that monthly presentations be held during school assemblies to promote active travel and generate interest and excitement amongst the staff and students. This presentation should also help students to understand the road rules, as well as teach them how to be safe road users in real-life situations.

Item	Description of Measure
15. Park and Stride Programme	It is recommended that the school consider implementing a Park and Stride programme to encourage parents to drive their children to an off-site location (e.g. Centennial Parklands) and walk to the school to alleviate traffic congestion on surrounding residential streets. This measure would however need to be discussed with Council as all drop offs are currently undertaken on-site.
16. Learn to Ride Programme	It is recommended that the school organise Learn to Ride programme to offer lessons for students in learning how to ride a bicycle in a safe and responsible manner. It will be a fun and interactive learning experience for students to develop their riding skills, knowledge and confidence.
17. Additional shuttle bus service	School will provide a shuttle bus service between Bondi Junction and Moriah College which will be in a form of minibus.

5.2 Staggering Arrival and Departure Times

At present, primary and secondary start and finish times are staggered. However, it may be desirable to further stagger start and finish times for each year group. Staggering drop off and pick up times for school children can help alleviate congestion during peak periods. It is therefore recommended that the start and finish times be amended for each year group to assist distribute school related trips during school drop off and pick up times.

In addition to this, schemes can also be easily implemented by the schools through the School News Bulletin (or similar) to provide parents with a general guideline as to what time they should drop off and pick up their child for each year group. This however may raise some concerns for parents who have more than one child in different year group at the school.

Further detailed consultation with staff and students/parents would need to be conducted to understand if amending the existing start and finish times are viable. It may become necessary that an "after class" room be established with a supervising teacher to accommodate any students who are waiting for their sibling in a different year group at the school. It may also be the case that before and after school activities be reviewed and promoted in order to stagger to student levels to suit the proposed staggered start and finish times.

5.3 Off-site Measures

The College will consult with Waverley Council and/or TfNSW with a view to implementing several off-site measures to improve the transport connections to and from site including:

- investigations with Council to improve the existing bike routes surrounding the College as shown in Council's Bike Map. This is to include improvement of infrastructure to provide better bicycle access from existing Queens Park cycleway to Baronga Avenue zebra crossing.

- improved signage and way finding from the surrounding local road network, to improve walking and cycling experience. Signage would include way finding for cyclists on the best and safest route to the College.
- discussions with TfNSW to provide additional school bus services and more frequent services to/from the Campus, particularly during the school morning period.

5.4 Transport Access Guide

The information provided within the GTP will be provided to students and staff in the form of a package of easy to understand travel information known as a Transport Access Guide (TAG).

TAGs provide customised travel information for people travelling to and from a particular site using sustainable forms of transport – walking, cycling and public transport. It provides a simple quick visual look at a location making it easy to see the relationship of site to train stations, wharfs, bus stops and walking and cycling routes.

Such TAGs encourage the use of non-vehicle mode of transport and can reduce associated greenhouse gas emissions and traffic congestion while improving health through active transport choices.

They can take many forms from a map printed on the back of business cards or brochures. Best practice suggests that the information should be as concise, simple and site centred as possible and where possible provided on a single side/sheet. If instructions are too complex, people are likely to ignore them.

This TAG is to be available for pick up at various locations within the College such as, at front entrances and noticeboards.

A draft TAG has been prepared for the site and is provided in Appendix A.

5.5 Information and Communication

Several opportunities exist to provide students and staff with information about nearby transport options. Connecting students and staff with information will help to facilitate journey planning and increase their awareness of convenient and inexpensive transport options which support change in travel behaviour.

Transport NSW info

- Bus, train and ferry routes, timetables and journey planning are provided by Transport for New South Wales through their Transport Info website:

<http://www.transportnsw.info/>

Cycleway Finder

- The Roads and Maritime Services provides a map with detailed cycling route information to encourage people of all levels of experience to travel by bicycle:

http://www.rms.nsw.gov.au/maps/cycleway_finder

Similarly, phone apps such as TripView display Sydney public transport timetable data and shows a summary view showing current and subsequent services, as well as a full timetable viewer. This timetable data is stored on mobile devices, so it can be used remotely.

Connecting students and staff via social media may provide a platform to informally pilot new programs or create travel-buddy networks and communication.

The above web links and any social media platforms are to be included within the GTP/TAG.

5.6 Actions

A summary of the key strategy and framework action table is shown in Table 5.2. It should be noted that this framework action table will be updated as required. However, it is stressed that the availability of the suggested strategies from Day 1 on the term and/or during staff induction procedures is a key factor in influencing travel patterns.

Table 5.2: Framework Action Table

Strategy/Action	Objective	Responsibility	Timescale
Reduce on-site car parking	1	The College	2023/2024
Introduce designated carpool only spaces	1	The College	Ongoing
Review car parking policy and limit car parking allowances	1, 3	The College	Annually
Advocate existing car sharing facilities nearest the school buildings	1, 2	The College / TPC	Ongoing
Provide discounted GoGet memberships for staff and students	1, 2	The College / TPC	Ongoing
Establish a carpooling online forum for staff and students to register and establish social/"meet and greet" events to promote social interaction and carpooling	1, 2	TPC	Ongoing
Provide showers, changing rooms, drying rooms and lockers within the site which are easily accessible and near buildings/classes	1, 2, 3	The College	2023/2024
Provide secure bicycle parking	1, 2, 3	The College	2023/2024
Establish Walking Groups / Walking School Bus and Bicycle User Groups with associated online forums	1, 2, 3	TPC	Ongoing
Provide public transport noticeboard at key locations within the site in the form of a travel access guide. This will also be posted on the College's website and included as part of all student enrolments and during staff induction.	1, 2	The College / TPC	Ongoing
Provide interest free loan scheme for travel by bus, rail and bicycle and public transport incentives/discounts (e.g. \$50 pre-loaded opal cards for staff)	1, 2	The College / TPC	Ongoing
Promotion of the carpooling, walking and cycling user group forums to be distributed regularly via email to staff and students	1, 2, 3	TPC	Ongoing
Provide staff, students and visitors with the GTP to encourage active travel	1, 2, 3	The College / TPC	Ongoing
Provide staff, students and visitors with a TAG on day one of enrolment/induction and post the TAG on noticeboards, front entrances, the College's online website, etc.	1, 2, 3	The College / TPC	Ongoing
Provide well-lit and safe pedestrian and cyclist facilities within the College	1, 2, 3	The College / Council	Ongoing
Establish monthly Road Safety Awareness presentations	1, 2	The College / TPC	Ongoing
Park and Stride Programme	1, 2	The College / TPC	Ongoing
Learn to Ride Programme	1, 2, 3	The College / TPC	Ongoing
Additional shuttle bus service	1, 2	The College	2023/2024
Ongoing review of the GTP to introduce additional measures as required	1, 2, 3	TPC	Ongoing

*TPC = Travel Plan Coordinator

6 Management and Monitoring of the Plan

6.1 Management

There is no standard methodology for the implementation and management of a GTP however the GTP will be monitored to ensure that it is achieving the desired benefits. The mode share targets set out in Section 4 are used in this regard to ensure there is an overall goal in the management of the GTP.

The monitoring of the GTP will require annual travel surveys to be undertaken with a focus to establish travel patterns including mode share of trips to and from the site.

The implementation of the GTP will need a formal Travel Plan Co-ordinator (TPC), who will have responsibility for developing, implementing and monitoring the GTP. The TPC will be an appointed staff member or an independent expert.

It will also be necessary to provide feedback to students and staff to ensure that they can see the benefits of sustainable transport.

There are several keys to the development and implementation of a successful GTP. These include:

- **Communication** – Good communication are an essential part of the GTP. It will be necessary to explain the reason for adopting the plan, promote the benefits available and provide information about the alternatives to driving alone.
- **Commitment** – GTPs involve changing established habits or providing the motivation for people to choose a travel mode other than relying on private vehicles. To achieve co-operation, it is essential to promote positively the wider objectives and benefits of the plan. This commitment includes the provision of the necessary resources to implement the plan, beginning with the introduction of the 'carrots' or incentives for changing travel modes from Day 1 of staff induction/student enrolment.
- **Consensus** – It will be necessary to obtain broad support for the introduction of the plan from the staff and students.

Once the plan has been adopted, it is essential to maintain interest in the scheme. Each new initiative in the plan will need to be publicised and marketing of the project as a whole will be important.

6.2 Remedial Actions

A continuous review will take place to identify remedial actions should the modal share targets not be achieved. At this stage, the following measures are proposed both as discrete measures (e.g. car share) and those being proposed as part of the redevelopment of the site:

- increased bicycle parking
- increased/ improved changing facilities/lockers
- improve pedestrian paths within the site
- increase use of car share (GoGet)
- additional shuttle bus service

6.3 Green Travel Plan Working Party

It is recommended that a committee known as the Green Travel Plan working party be set up to implement programs and initiatives within the College to promote increased use of public transport services and car-pooling opportunities. Such a working party may include staff and student representatives and active community/council representatives who could contribute to the process.

6.4 Consultation

The results of the GTP will be communicated with students, staff and to the wider community via the College website and/or noticeboards and newsletters.

As such, it is recommended that a summary letter is produced presenting the results of the survey every 3 and 5 years. This letter/report can be appended to the GTP.

Communication to students, staff and wider community may be carried out in a similar form by public display of the GTP on the College website and/or noticeboards. Alternatively, a news article on the matter could be included on the website and/or noticeboards and newsletters.

7 Conclusion

It is recommended that travel surveys be conducted each year to highlight both successes and areas for improvement.

The findings of these surveys should be reported every year after the recommended green travel initiatives have been adopted to measure the effectiveness of these measures. This GTP would need to be updated accordingly to reflect the findings of the updated travel surveys.

If required, additional measures may be required to achieve the modal split targets and to achieve the long-term aspiration of no net peak hour traffic increase on the road network compared with the 2019 counts.

Appendix A

Travel Access Guide



Bus Services

Bus stops are located around the School for student, staff and visitor use.

357 Mascot to Bondi via Kingsford	706E Moriah College to Bondi Junction
699E Watsons Bay to Moriah College	338 Clovelly to Central Railway Square
700E Moriah College to Watsons Bay	339 Clovelly to City Gresham Street
701E Moriah College to Watsons Bay	X39 Clovelly to City Martin Place
702E Moriah College to Dover Heights	X40 Clovelly to City Museum
703E Moriah College to Bondi Junction	Moriah Shuttle Bus (Moriah College to Bondi Junction)
704E Moriah College to Maroubra Beach	Moriah Shuttle Bus (Maroubra Beach to Moriah College)
705E Moriah College to South Head Cemetery	



Parking, Drop-off and Pick-up

- Staff parking area access via Queens Park Road (Gate 2) and York Road (Gate 1 and 4)
- Student drop-off and pick-up location at Gate 1 car park (Primary) and Gate 4 car park (ELC and High School)
- Parking on-site is limited and will need to be pre-arranged in advance. To park on-site, please call 02 9375 1600.



Cycling

A number of bike routes are available in the area. Check [Waverley Bike Plan](#) for more information.

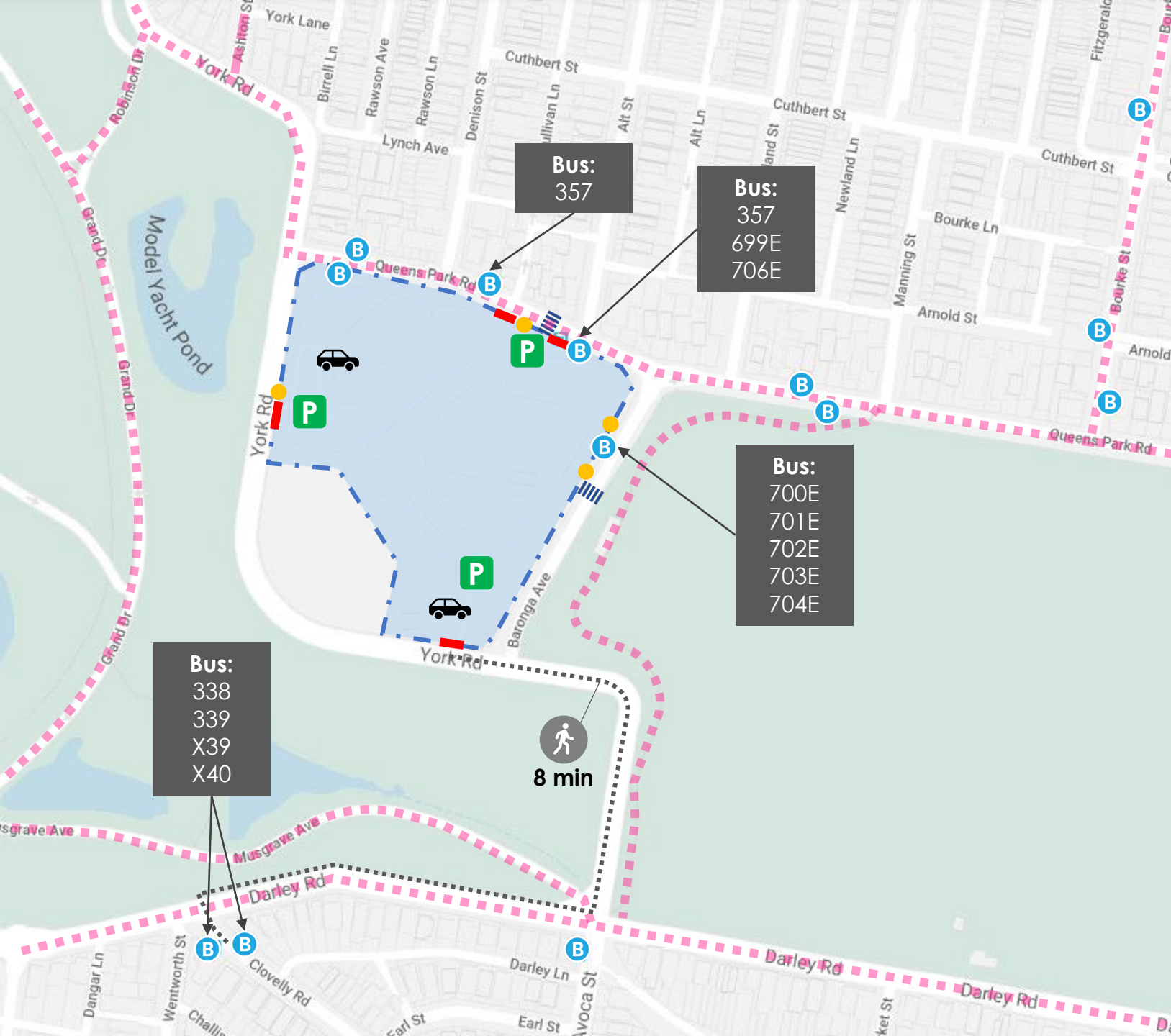


For more transport options, visit <https://transportnsw.info/>








Travel Access Guide

Moriah College
Queens Park

Travel Guide Map



Key:

-  Vehicle Access Gate
-  Pedestrian Gate
-  Pedestrian Crossing
-  Bus stop
-  Staff Allocated Parking
-  Drop-off / Pick-up Area
-  Bicycle Route

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